

Atty. Dkt. No. EPI3007D
(formerly TSRI 184.2C3)

IN THE CLAIMS

The status of each claim is shown below. Claims 21, 26 and 63 have been amended. New claims 103-106 have been added.

Claims 1-20 (Cancelled.)

21. (Presently amended) A plant comprising:

(a) plant cells containing nucleotide sequences encoding a biologically functional multimeric protein comprising at least two different polypeptides not ~~(normally)~~ naturally produced by plants, wherein each nucleotide sequence encoding a polypeptide of the multimeric protein encodes a leader sequence forming a secretion signal that is cleaved from said polypeptide following proteolytic processing; and

(b) biologically functional multimeric protein encoded by said nucleotide sequences and resulting from assembly of said at least two different polypeptides.

Claims 22-23 (Cancelled.)

24. (Previously presented) The plant of claim 21 wherein the multimeric protein comprises a ligand binding polypeptide.

25. (Previously presented) The plant of claim 24 wherein the ligand is an antigen.

26. (Presently amended) The plant of claim 21 wherein upon assembly of the polypeptides the multimeric protein form a binding site specific for a predetermined antigen.

27. (Previously presented) The plant of claim 21 wherein the multimeric protein is an enzyme.

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28. (Previously presented) The plant of claim 21 wherein the multimeric protein is an abzyme.

29. (Previously presented) The plant of claim 21 wherein the multimeric protein contains one or more disulfide bonds.

30. (Previously presented) The plant of claim 21 wherein the polypeptides of the multimeric protein are joined by hydrogen bonding.

31. (Previously presented) The plant of claim 21 wherein the multimeric protein comprises an immunoglobulin.

32. (Previously presented) The plant of claim 31 wherein the immunoglobulin comprises a Fab.

33. (Previously presented) The plant of claim 31 wherein the immunoglobulin comprises a Fab'.

34. (Previously presented) The plant of claim 31 wherein the immunoglobulin comprises a F(ab')₂.

35. (Previously presented) The plant of claim 31 wherein the immunoglobulin comprises a Fv.

36. (Previously presented) The plant of claim 31 wherein the immunoglobulin comprises an antibody.

37. (Previously presented) The plant of claim 31 wherein the immunoglobulin contains a paratope.

38. (Previously presented) The plant of claim 21 wherein the multimeric protein comprises a glycosylated immunoglobulin molecule free of sialic acid residues.

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39. (Previously presented) The plant of claim 21 wherein the plant is a dicotyledonous plant.

40. (Previously presented) The plant of claim 21 wherein the plant is a monocotyledonous plant.

Claims 41-42 (Cancelled.)

43. (Previously presented) A plant cell containing nucleotide sequences encoding an antigen-specific immunoglobulin, said nucleotide sequences encoding an immunoglobulin heavy and light chain polypeptide wherein each polypeptide contains a leader sequence that forms a secretion signal; and immunoglobulin encoded by said nucleotide sequences, wherein each leader sequence is cleaved from said immunoglobulin heavy chain and light chain polypeptide following proteolytic processing resulting in assembly of said antigen-specific immunoglobulin.

Claims 45-49 (Cancelled).

50. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin is an antibody.

Claims 51-53 (Cancelled).

54. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin comprises a Fab.

55. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin comprises a Fab'.

56. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin comprises a F(ab')₂.

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57. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin comprises an Fv.

58. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin comprises an antibody.

59. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin contains a paratope.

60. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin is glycosylated, said glycosylation being free of sialic acid residues.

61. (Previously presented) The plant cell of claim 43 wherein the cell is a dicotyledonous plant cell.

62. (Previously presented) The plant cell of claim 43 wherein the cell is a monocotyledonous plant cell.

63. (Presently amended) The plant cell of claim 43 ~~(derived)~~ obtained from an algal plant.

Claims 64-68 (Cancelled).

69. (Previously presented) The plant cell of claim 43 wherein the immunoglobulin heavy chain is selected from the group consisting of IgA heavy chain, IgD heavy chain, IgE heavy chain, IgG heavy chain, and IgM heavy chain.

70. (Previously presented) The plant cell of claim 43, wherein said heavy chain is an IgA heavy chain.

71. (Previously presented) The plant cell of claim 43, wherein said heavy chain is an IgM heavy chain.

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72. (Previously presented) The plant cell of claim 43, wherein said heavy chain is an IgG heavy chain.

73. (Previously presented) The plant cell of claim 43, wherein said leader sequence is non-native to the plant cell.

74. (Previously presented) The plant cell of claim 73, wherein said non-native leader sequence is an immunoglobulin leader sequence.

75. (Previously presented) The plant cell of claim 72, wherein said non-native leader sequence is a yeast leader sequence.

76. (Previously presented) The plant cell of claim 43, wherein said leader sequence is a plant leader sequence.

77. (Previously presented) The plant cell of claim 43 wherein said cell is from a tobacco plant.

78. (Previously presented) The plant of claim 21, wherein said plant is an algal plant.

79. (Previously presented) A plant comprising the plant cell of claim 43.

80. (Previously presented) A plant cell obtained from the plant of claim 21.

Claims 81-100 (Cancelled).

101. (Previously presented) The plant of claim 21, wherein said multimeric protein is present at a level of at least 56 ng/mg of total protein in an extract of said plant.

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102. (Previously presented) The plant of claims 43, wherein said antigen specific immunoglobulin is present at a level of at least 56 ng/mg in total protein in an extract of said plant.

103 (New) The plant of claim 21 wherein said multimeric protein is a member of the immunoglobulin gene superfamily.

104 (New) The plant of claim 21 wherein said multimeric protein comprises two different polypeptides.

105 (New) The plant of claim 21 wherein said multimeric protein comprises four different polypeptides.

106 (New) The plant of claim 21 wherein said multimeric protein is a mammalian protein.